

WHAT IS CLAIMED IS:

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1. A semiconductor device, comprising:
a semiconductor substrate including an active region and an
isolation region; and
a gate electrode formed on said active region with an insulating film
interposed therebetween, wherein
a surface of said active region is entirely rounded so as to be inclined
downward toward said isolation region.

2. The semiconductor device according to claim 1, wherein
said semiconductor device includes an SRAM (Static Random Access
Memory),
said SRAM includes an access MOS (Metal Oxide Semiconductor)
transistor and a driver MOS transistor, and
the surface of said active region of said access MOS transistor is
entirely rounded.

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3. The semiconductor device according to claim 1, wherein
an isolation insulating film is formed in said isolation region,
said isolation insulating film includes a bird's beak portion extending
on said active region, and
said active region is covered with said bird's beak portion.

4. The semiconductor device according to claim 3, wherein said
bird's beak portion has a larger thickness near said isolation region than in
a center of said active region.

5. The semiconductor device according to claim 2, wherein said
access MOS transistor has a smaller channel doping depth than that of said
driver MOS transistor.

6. The semiconductor device according to claim 2, wherein a gate

insulating film of said access MOS transistor has a larger thickness than that of a gate insulating film of said driver MOS transistor.

7. A method for manufacturing a semiconductor device, comprising the steps of:

5 forming a mask film on a semiconductor substrate so as to expose an isolation region of said semiconductor substrate as well as to cover an active region thereof;

10 selectively oxidizing said semiconductor substrate using said mask film, so as to form a bird's beak portion covering said active region;

removing said mask film and then forming a first insulating film on said bird's beak portion;

implanting impurities into said active region through said first insulating film and said bird's beak portion; and

removing said first insulating film and then forming a gate electrode on said active region with a second insulating film interposed therebetween.

8. The method according to claim 7, wherein said step of forming the bird's beak portion includes the step of forming said bird's beak portion such that a surface of said active region is entirely rounded by connecting said bird's beak portion on said active region.

9. A method for manufacturing a semiconductor device including an access MOS (Metal Oxide Semiconductor) transistor and a driver MOS transistor, comprising the steps of:

5 forming first and second mask films on a semiconductor substrate so as to expose an isolation region of said semiconductor substrate as well as to respectively cover a first active region where said access MOS transistor is to be formed and a second active region where said driver MOS transistor is to be formed;

10 selectively oxidizing said semiconductor substrate using said first and second mask films, so as to form a bird's beak portion entirely covering said first active region and covering only a peripheral portion of said second

active region;

removing said first and second mask films and then forming first and second insulating films on said first and second active regions, respectively;

15 implanting impurities into said first active region through said first insulating film and said bird's beak portion as well as implanting the impurities into said second active region through said second insulating film; and

20 removing said first and second insulating films and then forming first and second gate electrodes on said first and second active regions with third and fourth insulating films interposed therebetween, respectively.

10. The method according to claim 9, wherein said step of forming the bird's beak portion includes the step of forming said bird's beak portion such that a surface of said first active region is entirely rounded by connecting said bird's beak portion on said first active region.

11. The method according to claim 9, wherein said step of removing said first and second insulating films includes the step of leaving said bird's beak portion on said first active region while exposing a surface of said second active region.